

LISTING OF THE CLAIMS

Claim 1 (Previously Presented)

A data capturing and processing system for a bearing comprising: at least one sensor element, strip conductors and electronic components arranged adjacent a flexible carrier material, the sensor element, the strip conductors and the electronic components are directly connected to the flexible carrier material and the sensor element is connected by signaling technology via contacting elements to the strip conductors, the contacting elements being formed in the flexible carrier material by means through-hole plating elements the sensor element being on one side of the flexible carrier material and the strip conductors being on the other side of the flexible carrier material.

Claim 2 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element is fastened on the underside, and the strip conductors and the electronic components are fastened on the upper side of the flexible carrier material.

Claim 3 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the strip conductors and the electronic components are fastened on the underside and the sensor element is fastened on the upper side of the carrier material.

Claim 4 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element is at least one strain gage.

Claim 5 (Currently Amended)

A data capturing and processing system for a bearing comprising: at least one sensor element, strip conductors and electronic components arranged adjacent a flexible carrier material, the sensor element, the strip conductors and the electronic components are directly connected to the flexible carrier material and the sensor element is a capacitor with at least two plate-like conductor areas which are opposite one another and thereby separated from one another by the flexible carrier material the carrier material being a dielectric between the conductor areas, the at least two conductor areas comprising a first conductor area and a second conductor area, the first conductor area being provided on one ~~an~~^{an}upper side of the flexible carrier material and the second conductor area being arranged on the other ~~side~~ ~~an~~^{an}underside of the flexible carrier material, and the strip conductors and the electronic components are arranged on the one side of the flexible carrier material.

Claim 6 (Previously Presented)

The data capturing and processing system as claimed in claim 5, wherein at least one of the conductor areas on one side of the carrier material can be at least partially elastically deformed in the direction of the opposite conductor areas on the opposite side of the carrier material.

Claim 7 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element is at least one at least partially elastically extensible resistance bridge with at least one conductor of copper.

Claim 8 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the contacting elements are aligned perpendicularly in relation to the longitudinal and transverse extents of said carrier material or arranged in the manner of surface areas.

Claim 9 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element is fastened on that side of the flexible carrier material which in the assembled state faces the surface of that roller bearing component on which the measurement data capturing and processing system is arranged.

Claim 10 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element is fastened on that side of the flexible carrier material which in the assembled state faces the surface of that roller bearing component on which the measurement data capturing and processing system is fixed by means of adhesive material.

Claim 11 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the flexible carrier material comprises a film or a number of films lying one on top of the other.

Claim 12 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the flexible carrier material consists of a plastic or a thin and flexible metal foil.

Claim 13 (Previously Presented)

The data capturing and processing system as claimed in claim 12, wherein the plastic is a polyimide.

Claim 14 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the flexible carrier material is of ceramic.

Claim 15 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element, the strip conductors and the electronic components are formed on the flexible carrier material by means of a screen printing process, by vapor deposition or deposition of insulating, conducting and/or semiconducting materials.

Claim 16 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element, the strip conductors and/or the electronic components are respectively formed on separate flexible carrier materials, which are connected to one another to form a common flexible carrier material .

Claim 17 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein at least one of the electronic components is an amplifier.

Claim 18 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the flexible carrier material has a greater mechanical rigidity, at least in the region of the amplifier.

Claim 19 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the sensor element is adhesively attached on the flexible carrier material.

Claim 20 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein an adhesive material is applied to the flexible carrier material for fastening the sensor element and is covered with a pull-off protective film before the sensor element is attached.

Claim 21 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the surface of the sensor element and of the strip conductors is covered with an electrically insulating layer.

Claim 22 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the surface of the sensor element and of the strip conductors is covered with an electrically insulating layer and in that the insulating layer is a solder resist.

Claim 23 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the surface of the sensor element and of the strip conductors is covered with an electrically insulating layer and in that the insulating layer is an adhesive material, the adhesive material being applied to that side of the flexible carrier material which in the assembled state faces the surface of that roller bearing component on which the measurement data capturing and processing system is fixed by means of the adhesive material.

Claim 24 (Previously Presented)

The data capturing and processing system as claimed in claim 1, wherein the electrical and electronic components as well as the insulating layers and the flexible carrier material and also the sensor element at least partially consist of or are constructed from electrically insulating, semiconducting and/or conducting polymers.

Claim 25 (Previously Presented)

A bearing with a data capturing and processing system as claimed in claim 1, wherein the data capturing and processing system is fastened in at least one recess or a peripheral groove, or on a groove-less or recess-less annular area, of at least one roller bearing component, the roller bearing component and at least one further roller bearing component enclosing rolling bodies between them.

Claim 26 (Previously Presented)

The bearing with a data capturing and processing system as claimed in claim 1, wherein the data capturing and processing system is fastened in at least one recess or a peripheral groove, or on a groove-less or recess-less annular area, at least on the outer side of a bearing outer ring.

Claim 27 (Previously Presented)

The bearing with a data capturing and processing system as claimed in claim 1, wherein the data capturing and processing system is covered with an insulating encapsulating material.

Claim 28 (Previously Presented)

The data capturing and processing system as claimed in claim 5, wherein the contacting elements are aligned perpendicularly in relation to the longitudinal and transverse extents of said carrier material or arranged in the manner of surface areas.

Claim 29 (Previously Presented)

A bearing with a data capturing and processing system as claimed in claim 5, wherein the data capturing and processing system is fastened in at least one recess or a peripheral groove, or on a groove-less or recess-less annular area, of at least one roller bearing component, the roller bearing component and at least one further roller bearing component enclosing rolling bodies between them.

Claim 30 (Previously Presented)

The bearing with a data capturing and processing system as claimed in claim 5, wherein the data capturing and processing system is fastened in at least one recess or a peripheral groove, or on a groove-less or recess-less annular area, at least on the outer side of a bearing outer ring.

Claim 31 (Previously Presented)

The bearing with a data capturing and processing system as claimed in claim 5, wherein the data capturing and processing system is covered with an insulating encapsulating material.